

Declaration, Power Of Attorney and Petition

Page 1 of 3

WE (I) the undersigned inventor(s), hereby declare(s) that :

My residence, post office address and citizenship are as stated below next to my name,

We (I) believe that we are (I am) the original, first, and joint (sole) inventor(s) of the subject matter which is claimed and for which a patent is sought on the invention entitled
THIN LAYER OF HAFNIUM OXIDE AND DEPOSIT PROCESS

the specification of which

- ☐ is attached hereto.
- ☐ was filed on
as Application Serial No.
and amended on
- ☒ was filed as PCT international application
Number PCT/FR99/02797
on November 15, 1999
and was amended under PCT Article 19
on

We (I) hereby state that we (I) have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

We (I) acknowledge the duty to disclose information known to be material to the patentability of this application as defined in Section 1.56 of Title 37 Code of Federal Regulations.

We (I) hereby claim foreign priority benefits under 35 U.S.C. § 119 (a)-(d) or § 365 (b) of any foreign application(s) for patent or inventor's certificate, or § 365 (a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed. Prior Foreign Application (s)

Application No.	Country	Day/month/Year	Priority Claimed	
98 14350	FRANCE	16 NOVEMBER 1998	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
_____	_____	_____	<input type="checkbox"/> YES	<input type="checkbox"/> NO
_____	_____	_____	<input type="checkbox"/> YES	<input type="checkbox"/> NO
_____	_____	_____	<input type="checkbox"/> YES	<input type="checkbox"/> NO

We (I) hereby claim the benefit under Title 35, United States Code, § 119 (e) of any United States provisional application(s) listed below.

(Application Number)

(Filing Date)

(Application Number)

(Filing Date)

We (I) hereby claim the benefit under 35 U.S.C. §120 of any United States application(s), or § 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. § 112, I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR § 1.56 which became available between the filing date of prior application and the national or PCT International filing date of this application.

Application Serial No.

Filing Date

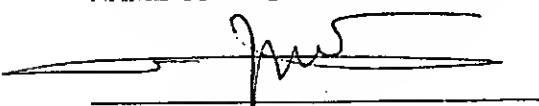
Status (pending, patented,
abandoned)

And we (I) hereby appoint : Oliver W. Hayes, Registration Number 15,867; Norman P. Soloway, Registration Number 24,315; William O. Hennessey, Registration Number 32,032 ; Susan Haddad Hage Registration Number 29,646 ; Steven J. Grossman, Registration Number 35,001 ; Christopher K. Gagne, Registration Number 36,142 and Edmund Paul Pfleger, Registration Number 41,252; our (my) attorneys, with full powers of substitution and revocation, to prosecute this application and to transact all business in the Patent Office connected therewith; and we (I) hereby request that all correspondence regarding this application be sent to the firm of HAYES, SOLOWAY, HENNESSEY, GROSSMAN & HAGE, whose post Office Address is : 175 Canal Street, Manchester, New Hampshire 03101-2335.

We (I) declare that all statements made herein of our (my) own knowledge are true and that all statements made on information and belief are believed to be true ; and future that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such wilful false statements may jeopardise the validity of the application or any patent issuing thereon.

ANDRE Bernard

NAME OF FIRST SOLE INVENTOR



Signature of Inventor

April 03, 2001
Date

Residence : 43 TER RUE MALLIFAUD
38100 GRENOBLE - FRANCE

Citizen of : FRANCE

Post Office Address : The same as residence

43 Ter rue Mallifaud
38100 Grenoble, FRANCE

DIPE

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TC 1700

DIJON Jean

NAME OF SECOND INVENTOR

Signature of Inventor

April 03, 2001
Date

RAFIN Brigitte

NAME OF THIRD INVENTOR

Signature of Inventor

April 03, 2001
Date

NAME OF FOURTH INVENTOR

Signature of Inventor

Date

NAME OF FIFTH INVENTOR

Signature of Inventor

Date

Residence

Allee des Rousserolles
38800 Champagnier FRANCE

Citizen of: FRANCE

Post Office Address : The same as residence
Allee des Rousserolles
38800 Champagnier, FRANCE

Residence : 52 Rue Thiers

38000 Grenoble FRANCE

Citizen of: FRANCE

Post Office Address : The same as residence
52 rue Thiers
38000 Grenoble, FRANCE

Residence :

Citizen of :

Post Office Address : The same as residence

Residence :

Citizen of :

Post Office Address : The same as residence



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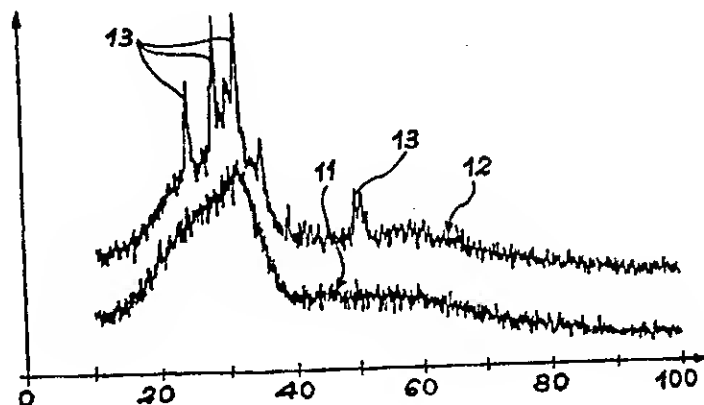


DEMANDE INTERNATIONALE PUBLIÉE EN VERTU DU TRAITÉ DE COOPÉRATION EN MATIÈRE DE BREVETS (PCT)

(51) Classification internationale des brevets ⁷ : C01G 27/02, C03C 17/00, 17/245, 17/34, C23C 14/08, 14/54	A1	(11) Numéro de publication internationale: WO 00/29330 (43) Date de publication internationale: 25 mai 2000 (25.05.00)
(21) Numéro de la demande internationale: PCT/FR99/02797 (22) Date de dépôt international: 15 novembre 1999 (15.11.99) (30) Données relatives à la priorité: 98/14350 16 novembre 1998 (16.11.98) FR (71) Déposant (pour tous les Etats désignés sauf US): COMMISSARIAT A L'ENERGIE ATOMIQUE [FR/FR]; 31-33, rue de la Fédération, F-75752 Paris 15ème (FR). (72) Inventeurs; et (75) Inventeurs/Déposants (US seulement): ANDRE, Bernard [FR/FR]; 43ter, rue Mallifaud, F-38100 Grenoble (FR). DIJON, Jean [FR/FR]; Allée des Rousserolles, F-38800 Champagnier (FR). RAFIN, Brigitte [FR/FR]; 52, rue de Thiers, F-38000 Grenoble (FR). (74) Mandataire: BRYKMAN, Georges; Brevatome, 3, rue du Docteur Lancereaux, F-75008 Paris (FR).	(81) Etats désignés: US, brevet européen (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Publiée <i>Avec rapport de recherche internationale.</i>	

(54) Title: **THIN HAFNIUM OXIDE FILM AND METHOD FOR DEPOSITING SAME**

(54) Titre: **COUCHE MINCE D'OXYDE D'HAFNIUM ET PROCEDE DE DEPOT**



(57) Abstract

The invention concerns a thin hafnium oxide film or a stack of thin films comprising hafnium oxide for treating optical surfaces, or optical components. The invention is characterised in that at least one hafnium oxide film is in amorphous form with density less than 8 g/cm³. The invention also concerns a method for producing an amorphous hafnium oxide film on a substrate, characterised in that it is deposited without energising the substrate.

(57) Abrégé

Couche mince d'oxyde d'hafnium ou empilement de couches minces comportant des couches d'oxyde d'hafnium pour réaliser des traitements de surface de composants optiques, ou des composants optiques, caractérisé en ce qu'au moins une couche d'oxyde d'hafnium est sous forme amorphe avec une densité inférieure à 8 g/cm³. L'invention concerne aussi un procédé de réalisation d'une couche d'oxyde d'hafnium amorphe sur un substrat, caractérisé en ce que le dépôt est effectué sans apport énergétique au substrat.



III-2	Déposant et/ou Inventeur	Déposant et inventeur
III-2-1	Cette personne est :	US seulement
III-2-2	Déposant pour	DIJON, Jean
III-2-4	Nom (NOM DE FAMILLE, Prénom)	Allée des Rousserolles
III-2-5	Adresse:	F-38800 CHAMPAGNIER
		France
III-2-6	Nationalité (nom de l'Etat)	FR
III-2-7	Résidence (nom de l'Etat)	FR
III-3	Déposant et/ou inventeur	Déposant et inventeur
III-3-1	Cette personne est :	US seulement
III-3-2	Déposant pour	RAFIN, Brigitte
III-3-4	Nom (NOM DE FAMILLE, Prénom)	52, rue de Thiers
III-3-5	Adresse:	F-38000 GRENOBLE
		France
III-3-6	Nationalité (nom de l'Etat)	FR
III-3-7	Résidence (nom de l'Etat)	FR
IV-1	Mandataire ; Représentant commun ou adresse pour la correspondance. La personne nommée ci-dessous est/ a été désignée pour agir au nom du ou des déposants auprès des autorités internationales compétentes, comme	mandataire
IV-1-1	Nom (NOM DE FAMILLE, Prénom)	BRYKMAN, Georges
IV-1-2	Adresse:	c/o BREVATOME
		3, rue du Docteur Lancereaux
		F-75008 PARIS
		France
IV-1-3	No. de téléphone	01.53.83.94.00
IV-1-4	No de télécopieur:	01.45.63.83.33
IV-1-5	Courrier électronique:	spibrev@easynet.fr
V	Désignation d'Etats	
V-1	Brevet régional (d'autres formes de protection ou de traitement, le cas échéant, sont spécifiées entre parenthèses pour les Etats désignés concernés)	EP: AT BE CH&LI CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE et tout autre Etat qui est un Etat contractant de la Convention sur le brevet européen et du PCT
V-2	Brevet national (d'autres formes de protection ou de traitement, le cas échéant, sont spécifiées entre parenthèses pour les Etats désignés concernés)	US